

Claims

- [c1] 1. A fluid dispenser for manually applying a selected fluid to a desired location, comprising:
- (a) a reservoir assembly that is able to contain the selected fluid, said reservoir includes a resilient body portion having a first end and a second end, a first end sealing cap, and a second end sealing cap assembly to define a reservoir interior, said body having bellows oriented to retract or extend said body between said first end and said second end to create a variable reservoir interior volume, said second end sealing cap includes a penetrable elastomeric member; and
 - (b) an applicator assembly having a proximal end and a distal end, said proximal end includes a non coring cannula with a lumen having an insertion end that is adapted to insert and penetrate through said elastomeric member and protrude into said reservoir interior enabling fluid communication between said reservoir interior and said lumen, said distal end includes an application element that is in fluid communication with said lumen.
- [c2] 2. A fluid dispenser according to claim 1 wherein said non coring cannula and lumen further comprises an aperture that is oriented substantially transverse to a longitudinal axis of said lumen, said aperture and lumen are in fluid communication, said aperture is positioned within said insertion end to create a blunt solid nose on a tip of said insertion end with said lumen terminating inboard of said tip to prevent cutting and coring of said elastomeric member while said insertion end is inserted and penetrated through said elastomeric member forming a substantially fluid tight seal between said non coring cannula and said elastomeric member also enabling said elastomeric member to substantially reseal with said insertion end removed from said elastomeric member, and to substantially prevent elastomeric member core debris from lodging in said lumen.
- [c3] 3. A fluid dispenser according to claim 1 wherein said application element is a brush having a plurality of bristles.
- [c4] 4. A fluid dispenser according to claim 1 wherein said application element is

constructed of an open celled foam element.

- [c5] 5. A fluid dispenser according to claim 1 wherein said application element is a nozzle element.
- [c6] 6. A fluid dispenser according to claim 1 wherein said lumen is sized with a flow restriction to control a flowrate of the selected fluid.
- [c7] 7. A fluid dispenser according to claim 1 further comprising an applicator support element secured between said reservoir assembly and said applicator assembly, said applicator support element is removably engagable between said reservoir assembly and said applicator assembly.
- [c8] 8. A fluid dispenser according to claim 1 wherein said body is constructed of a resilient synthetic plastic.
- [c9] 9. A fluid dispenser according to claim 1 wherein said body is constructed of materials selected from the group consisting essentially of polyethylene, polypropylene, and polyurethane materials.
- [c10] 10. A fluid dispenser according to claim 1 wherein said cannula and said application element are separable pieces that are matingly engagable in a substantially fluid tight manner.
- [c11] 11. A fluid dispenser according to claim 1.0 wherein said cannula further comprises an adapter positioned opposite of said insertion end for matingly engaging in a substantially fluid tight manner an external selected fluid source wherein selected fluid communication from said external selected fluid source into said lumen and further selected fluid communication into said reservoir interior is accomplished by extending said body from a retracted state to an extended state thus filling said reservoir with the selected fluid from the external selected fluid source.
- [c12] 12. A fluid dispenser according to claim 1 further comprising a valve that is positioned to be in fluid communication between said lumen and said application element, said valve being normally urged to a closed state and yieldable to an open state when said valve is exposed to selected fluid flow from

said lumen, wherein the selected fluid in said lumen then flows to said application element when said valve is in an open state, said valve is urged to return to the closed state at the termination of selected fluid flow from said lumen.

[c13] 13. A fluid dispenser according to claim 12 wherein said valve includes resilient arcuate wall portions that are diametrically opposed to one another to define a common discharge passage therebetween and are normally urged in a radial inward direction against one another to substantially close said valve placing said valve in a closed state, wherein when said valve is exposed to selected fluid flow from said lumen said resilient arcuate wall portions are urged in a radially outward direction to separate to define a common discharge passage placing said valve in an open state allowing the selected fluid to flow from said lumen to said application element.

[c14] 14. A fluid dispenser according to claim 1 wherein said reservoir interior volume is sized to be prefilled with the selected fluid for multiple uses and substantially sealed with said insertion end removed from said elastomeric member.

[c15] 15. A fluid dispenser according to claim 1 wherein said reservoir interior volume is sized to be prefilled with the selected fluid for a single use and substantially sealed with said insertion end removed from said elastomeric member.

[c16] 16. A fluid dispenser for manually applying a selected fluid to a desired location, comprising:

- (a) a reservoir assembly that is able to contain the selected fluid, said reservoir includes a resilient body portion having a first end and a second end, a first end sealing cap, and a second end sealing cap assembly to define a reservoir interior, said body having bellows that are defined by a plurality of angular segments each having a pair of sides that are of unequal length with a longer side and a shorter side, said bellows are oriented to retract with said shorter side of each said pair being folded back under said longer side resulting in said body retracting between said first end and said second end with said body maintaining its last selected retracted or extended position to create a selectable reservoir interior volume, said second end sealing cap includes a

penetrable elastomeric member; and

(b) an applicator assembly having a proximal end and a distal end, said proximal end includes a non coring cannula with a lumen having an insertion end that is adapted to insert and penetrate through said elastomeric member and protrude into said reservoir interior enabling fluid communication between said reservoir interior and said lumen, said distal end includes an application element that is in fluid communication with said lumen.

[c17] 17. A fluid dispenser according to claim 16 wherein said non coring cannula and lumen further comprises an aperture that is oriented substantially transverse to a longitudinal axis of said lumen, said aperture and lumen are in fluid communication, said aperture is positioned within said insertion end to create a blunt solid nose on a tip of said insertion end with said lumen terminating inboard of said tip to prevent cutting and coring of said elastomeric member while said insertion end is inserted and penetrated through said elastomeric member forming a substantially fluid tight seal between said non coring cannula and said elastomeric member also enabling said elastomeric member to substantially reseal with said insertion end removed from said elastomeric member, and to substantially prevent elastomeric member core debris from lodging in said lumen.

[c18] 18. A fluid dispenser according to claim 16 wherein said application element is a brush having a plurality of bristles.

[c19] 19. A fluid dispenser according to claim 16 wherein said application element is constructed of an open celled foam element.

[c20] 20. A fluid dispenser according to claim 16 wherein said application element is a nozzle element.

[c21] 21. A fluid dispenser according to claim 16 wherein said lumen is sized with a flow restriction to control a flowrate of the selected fluid.

112 15
[c22] 22. A fluid dispenser according to claim 16 further comprising an applicator support element secured between said reservoir assembly and said applicator assembly, said applicator support element is removably engagable between said

reservoir assembly and said applicator assembly.

[c23] 23. A fluid dispenser according to claim 16 wherein said body is constructed of a resilient synthetic plastic.

[c24] 24. A fluid dispenser according to claim 16 wherein said body is constructed of materials selected from the group consisting essentially of polyethylene, polypropylene, and polyurethane materials.

[c25] 25. A fluid dispenser according to claim 16 wherein said cannula and said application element are separable pieces that are matingly engagable in a substantially fluid tight manner.

[c26] 26. A fluid dispenser according to claim 25 wherein said cannula further comprises an adapter positioned opposite of said insertion end for matingly engaging in a substantially fluid tight manner an external selected fluid source wherein selected fluid communication from said external selected fluid source into said lumen and further selected fluid communication into said reservoir interior is accomplished by extending said body from a retracted state to an extended state thus filling said reservoir with the selected fluid from the external selected fluid source.

[c27] 27. A fluid dispenser according to claim 16 further comprising a valve that is positioned to be in fluid communication between said lumen and said application element, said valve being normally urged to a closed state and yieldable to an open state when said valve is exposed to selected fluid flow from said lumen, wherein the selected fluid in said lumen then flows to said application element when said valve is in an open state, said valve is urged to return to the closed state at the termination of selected fluid flow from said lumen.

[c28] 28. A fluid dispenser according to claim 27 wherein said valve includes resilient arcuate wall portions that are diametrically opposed to one another to define a common discharge passage therebetween and are normally urged in a radial inward direction against one another to close said valve placing said valve in a substantially closed state, wherein when said valve is exposed to selected fluid

flow from said lumen said resilient arcuate wall portions are urged in a radially outward direction to separate to define a common discharge passage placing said valve in an open state allowing the selected fluid to flow from said lumen to said application element.

- [c29] 29. A fluid dispenser according to claim 16 wherein said reservoir interior volume is sized to be prefilled with the selected fluid for multiple uses and substantially sealed with said insertion end removed from said elastomeric member.
- [c30] 30. A fluid dispenser according to claim 16 wherein said reservoir interior volume is sized to be prefilled with the selected fluid for a single use and substantially sealed with said insertion end removed from said elastomeric member.
- [c31] 31. A method of using a fluid dispenser for manually applying a selected fluid to a desired location, comprising the steps of:
- (a) providing a fluid dispenser that includes a reservoir assembly containing the selected fluid, said reservoir includes a resilient body portion having a first end and a second end, a first end sealing cap, and a second end sealing cap assembly to define a reservoir interior, said body having bellows that are defined by a plurality of angular segments each having a pair of sides that are of unequal length with a longer side and a shorter side, said bellows are oriented to retract with said shorter side of each said pair being folded back under said longer side resulting in said body retracting between said first end and said second end with said body maintaining its last selected retracted or extended position, said second end sealing cap assembly includes a penetrable elastomeric member, said fluid dispenser also includes an applicator assembly having a proximal end and a distal end, said proximal end includes a non coring cannula with a lumen having an insertion end that is adapted to insert and penetrate through said elastomeric member and protrude into said reservoir interior enabling fluid communication between said reservoir interior and said lumen, said distal end includes an application element that is in fluid communication with said lumen;

- (b) positioning said application element at the desired location;
- (c) retracting said reservoir body a sufficient amount to initiate the selected fluid to communicate from said reservoir interior to said lumen and onward to said application element;
- (d) applying the selected fluid to the desired location by use of said application element; and
- (e) retracting said reservoir body further to a retracted position by a single said angular segment pair causing said shorter side of said pair being folded back under said longer side, with said body maintaining the retracted position thus continuing the selected fluid communication from said reservoir interior to said lumen and onward to said application element.

[c32] 32. The method of using a fluid dispenser according to claim 31 wherein steps (d) and (e) are sequentially repeated until the selected fluid has been completely applied to the desired location.